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REMARKS/ARGUMENTS

Minor amendments were made to claims 27, 29, 32, 33, 35, 37, 40, 42 and 45 in respect of the term "infrastructure" to improve clarity. Minor amendments were made to claims 28, 29, 36, 38, 41 and 42 in respect of the phrase "slot formed from said material" (which was replaced with "slot formed in said material") for a more natural expression. No new matter is involved in these amendments.

Claim Objections

The Examiner objected to claims 32-33 because they are duplicate claims. Currently amended claims 32 and 33 depend on claims 27 and 28 respectively.

The Examiner objected to claim 1 because of the mismatch of "electro-mechanical infrastructures" and "said infrastructure is". Applicant believes the Examiner meant to refer to claim 27 and points out that "said infrastructure" correctly matches the initial "one such infrastructure" that is followed by "said such infrastructure". In any case, amended claim 27 now recites "said such infrastructure is" for an abundance of clarity.

For the above reasons, withdrawal of these objections is respectfully requested.

Claim Rejection under 35 USC 112

The Examiner rejected claim 40 pursuant to 35 USC 112, thinking that "such infrastructure" renders the claim indefinite because it was unclear to him whether the limitations following that phrase are part of the claimed invention. Claim 40 has two occurrences of "such infrastructure" (the first occurrence ends element (a) of the claim on the third line of the claim, and the second occurrence ends element (b) and finishes the last line of the claim) and because of the Examiner's reference to "limitations following that phrase", Applicant infers that Examiner cannot be referring to the second

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occurrence (since there is nothing that follows), and is therefore questioning the first occurrence, i.e. "one such infrastructure". With respect, Applicant contends that the "one such infrastructure" is clear and does not render the claim indefinite. The claim starts with the preambular, "...for use with differing electro-mechanical infrastructures, comprising..." and then recites a first RF radiating/receiving element locatable within "one such infrastructure", and then goes on to refer to "such infrastructure". The "one such infrastructure" questioned by the Examiner is part of the operation of claimed RF telemetry unit of the claim (i.e. the RF unit operates in the context of a "real" electro-mechanical infrastructure and not in the context of a notional one), and the feature that the claimed RF unit can be used with one such infrastructure (selected out of a set of other, differing infrastructures) is part of the claimed invention.

For the above reasons, withdrawal of this rejection is respectfully requested.

Claim Rejections under 35 USC 102

The Examiner rejected claims 27, 35 and 40 under 35 USC 102(e) as being anticipated by Winter.

Regarding claim 40, the Examiner thought that Winter discloses "an RF telemetry unit for use with differing electro-mechanical infrastructure (20,10), comprising: a first RF radiating/receiving element (76) and a first metallic structure (80) (see column 4, line 50 and fig. 1-6) placed physically closer to said first RF radiating/receiving element (76) than the electro-mechanical infrastructure is (See fig. 1-7)."

Applicant respectfully requests Examiner to reconsider for the following reasons.

This application understands the phrase "metallic structure" and the "incumbent metallic infrastructure (and their respective derivatives) as follows. The metallic "infrastructure" is something providing the metallic context within which (or to

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which) the Applicant's inventive contribution - metallic "structure" - operates (or is added). The specification describes the key terms and concepts. In the three excerpts from the specification below, for a more immediate understanding of Applicant's position, the phrase "incumbent metallic infrastructure" (and derivative and related expressions) are underlined, and the phrase "*metallic structure*" is italicized.

First, under BACKGROUND OF THE INVENTION: "Antenna performance parameters such as efficiency, radiation/reception pattern, and resonant frequency are affected when the antenna is placed in the vicinity of metallic infrastructures. The incumbent or resident metallic infrastructures in conventional electromechanical utility meters (such as GE Watthour Meter I-70-S and ABB AB-1) greatly affect the performance parameters of conventional half-wave dipole or quarter-wave whip antennas when such antennas are incorporated within the confines of a conventional meter. The interactions between the metallic infrastructure in a conventional meter and such conventional antennas are highly sensitive in the sense that the difference in the metallic infrastructures themselves between different meter models is sufficient to cause inconsistent antenna performance. The goal of the invention is to increase the stability and efficiency of antenna performance over many meter types."

Secondly, under DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT: "With reference to FIGS. 1 and 2, a conventional meter 100 houses electro-mechanical (incumbent or resident) metallic infrastructures (consisting of gears, brackets, prongs, tumblers, disks, rivets and the like, identified generally as 140) enclosed by a transparent (typically glass or plastic) cover 90. Herein, the term "metallic infrastructure" is meant to describe the (resident or incumbent) metallic infrastructure 140 whereas the term "*metallic structure*" is meant to describe the contribution of the present invention."

And thirdly, at the end of the specification (after the Preliminary Amendment, filed on January 18, 2005): "Although the preferred and alternative embodiments have

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been given in the context of a conventional utility meter, the present invention is not limited to such contexts. The present invention teaches that incumbent or resident metallic infrastructures which are problematic because they vary from (conventional meter) model to model, can be substantially “tamed” by inserting a *metallic structure* that becomes more “dominant” than the incumbent or resident “adjacent” metallic infrastructure because of its closer proximity to the RF radiating/receiving element of the subject antenna. This more “dominant” *metallic structure* is more manageable than the varying incumbent or resident metallic infrastructures because its effects are more uniform and thus predictable.”

With the above understanding of the term “metallic structure” for this application, Applicant points out that Winter’s antenna 74 is a PIFA antenna (most clearly seen in FIG. 6 as explained at col 4, lines 33 et seq). Elements 76 and 80 are integral parts of the standard PIFA antenna – without both elements, there will be, by definition, no PIFA antenna. In particular, element 80 is part of the standard PIFA antenna and certainly not part of the “metallic structure” as understood by this application.

For the above reasons, claim 40 is neither anticipated by Winter nor obvious relative to Winter.

With respect to claim 27, the Examiner thought that Winter discloses “a method for use with differing electromechanical infrastructures (20,10), to minimize the effects on the performance of a first RF radiating/receiving located within one such infrastructure due to its interactions with said such infrastructure, comprising the step of placing a first metallic structure (80) physically closer to said first RF radiating/receiving element (76) than said infrastructure is.” Applicant repeats its comments made above in respect of claim 40 *mutatis mutandi*.

With respect to claim 35, the Examiner thought that Winter discloses “a metallic

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infrastructure of conventional prongs, brackets, rivets and metallic elements (See fig. 19), with RF telemetry functionality, comprising the steps of: providing RF functionality with a first RF radiating/receiving element (76) within the infrastructure; and placing a first metallic structure (see column 4, line 50 and fig. 1-6) physically (80) closer to said first RF radiating/receiving element (76) than the infrastructure is (20,10)(see fig. 1-7)." Applicant repeats its comments made above in respect of claim 40 *mutatis mutandi*.

For the above reasons, withdrawal of these rejections is respectfully requested.

Claim Rejections under 35 USC 103

The Examiner rejected claims 28-34, 36-39 and 41-47 under 35 U.S.C. 103 (a) as being unpatentable over Winter in view of Meek.

With respect to claims 28-30, 36-39, and 41-43, the Examiner thought that Winter discloses "all limitation of invention recited in claim 27 except for RF radiating/receiving element is a lot formed from material, thereby forming a first slot antenna. However, Meek et al. discloses the slot antennas (see fig. 4-5). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify Winter et al. to implement the device of Winter et al. by arranging a first and second a lot antenna to have different bandwidth (See column 2, line 50-60) since such an replace the patch antenna to have slot antenna for the stated purpose has been well known in the art as evidenced by the teaching of Hill (see column 2, line 50-60)."

Applicant respectfully requests Examiner to reconsider the rejection of claim 27 for the following reasons.

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It is incumbent on the Examiner to prove a *prima facie* case of obviousness (MPEP 2142). To establish a *prima facie* case, three basic criteria must be met. First, the prior art reference must teach or suggest all the claim limitations. Second, there must be a reasonable expectation of success. Finally, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference.

Applicant respectfully contends that the Examiner's arguments do not establish a *prima facie* case in failing to satisfy the three basic criteria, whether individually or in totality.

First, the combination of Winter with Meek is improper. Winter's antenna 74 is a PIFA antenna (most clearly seen in FIG. 6 as explained at col 4, lines 33 et seq). The radiation pattern for the Winter PIFA antenna within the meter described by Winter, and the radiation pattern of a slot antenna (whether generally or of Meek in particular), are so notionally different because of their radically differing geometries, that no person in the art would start to think of combining them and even if he did start, he would do so with the certain knowledge that very substantial experimentation and ingenuity would be required to make a successful replacement (assuming of course a successful replacement was possible). In particular, the Examiner has not shown the radiation patterns of the Meek slot antenna and of the Winter PIFA antenna and therefore no comparison therebetween can be made, i.e. the Examiner has not started to address one criterion of a *prima facie* case, viz a reasonable expectation of success.

More generally, the Examiner must consider radiation patterns in 3-dimensional context, as the person skilled in the art would – i.e. with multi-factorial consideration of power input, impedance matching, bandwidth, gain, the surrounding metallic environment, geometry/directionalities, and other factors. To take a very trivial example, a rectangular slot of a given dimension cut in a flat sheet

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of metal, will have a different radiation pattern than if cut in the wall of a cylinder because the electric currents would have different paths in those two different slot antennas. The antenna art is a difficult and empirically driven, context-specific art - no person skilled in the art would attempt to do "cut and paste" analysis (of, for example, the three references cited by the Examiner) except on the basis of "try and see" experimentation. The Examiner has not, of course, tried to provide any such experimentation.

Secondly, the grammar in the Examiner's rejection quoted above *in toto* (on page 10 of this paper), appears to the Applicant to be very awkward but he appears to be saying that replacing a patch antenna (of Winter) with a slot antenna (of Meek) is well known in the art, and for support thereof, the Examiner refers to Hill (col 2, lines 50-60) as an example. Applicant is unclear about the Examiner's intention to refer to "col 2, lines 50-60" twice in his rejection quoted above and Applicant does not find the text in Hill identified as "col 2, lines 50-60" to be relevant. Applicant guesses, for purposes of hypothetical discussion only, that the Examiner was referring to "col 2, lines 50-60" of Meek, in which case, Applicant points out that Winter is not a patch antenna – it is a PIFA antenna – and so the Examiner's proposed replacement, is improper.

In respect of claims 28-30, Applicant repeats its comments made above in respect of claim 27, on which those claims ultimately depend.

The Examiner has not stated any valid reasons for the rejection of claims 36-39 and 41-43. Applicant respectfully points out that Examiner relies on arguments for claim 27 (in his rejection quoted above *in toto*), on which claims 36-39 and 41-43 do not depend.

With respect to claims 31 and 44, the Examiner thought that Meek discloses, "the dominant null of the RF radiating/receiving element of one antenna is mitigated by the

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RF radiating/receiving element of the other antenna (See column 3, line 1-7)." Claim 31 depends ultimately on claim 27, and so Applicant repeats its comments made above in respect of claim 27. Claim 44 depends on claims 40-43, and the Examiner has not stated any valid reasons for the rejection of any of claims 40-43 (since they do not depend on claim 27). In any case, Applicant is unable to discern in Meek in column 3, lines 1-7 (as referenced by the Examiner) anything that relates to the mitigation of the dominating null of one antenna by the other antenna.

With respect to claims 32-33, and 45, the Examiner thought that Winter discloses "the infrastructure is that of a conventional resource-measuring meter (see fig. 1)." Claims 32-33 depend ultimately on claim 27 and so Applicant repeats its comments made above in respect of claim 27. Claim 45 depends on claim 40 and the Examiner has not stated any valid reason for the rejection of claim 40 (since it does not depend on claim 27).

With respect to claims 34 and 47, the Examiner thought that Meek discloses "the dielectric properties that do not adversely affect the performance of the radiating/receiving element (See fig. 4-6)." Claim 34 depends on claim 27, and so Applicant repeats its comments made above in respect of claim 27. Claim 47 depends on claim 40, for which Examiner has not stated any valid reasons for rejecting (since it does not depend on claim 27).

With respect to claim 46, the Examiner thought that Winter discloses "the meter has a cover and said first antenna (76) is located under said cover (22)(see fig. 45)." This claim depends on claim 45, and so Applicant repeats its comments made above in respect of claim 45.

For the above reasons, withdrawal of these rejections is respectfully requested.

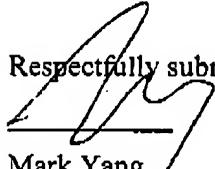
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SUMMARY

No amendment made was related to the statutory requirements of patentability unless expressly stated herein. No amendment made was for the purpose of narrowing the scope of any claim, unless Applicant has argued herein that such amendment was made to distinguish over a particular reference or combination of references.

The Applicant believe that this application, as amended, is in condition for allowance, and such action is respectfully requested. If the Examiner considers this application to be non-allowable, he is requested to telephone the Applicant's attorney at the number indicated below so that prosecution may be advanced by the clarification of any continuing rejection.

Respectfully submitted,


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